

REMARKS/ARGUMENTS

Prior to entry of the present Amendment, claims 1-7 are pending. In the present Amendment, claims 1 and 3-4 are amended. New claim 8 is added. No new matter is added.

Examiner's Interview

Applicants appreciate the Examiner's time and consideration during the Interview held on December 4, 2008. During the Interview, Applicants' representative and the Examiner discussed proposed amended claims 1 and 3-4 and the teachings of the prior art, U.S. Patent No. 4,157,666 ("Ursel") and European Patent Document No. EP 1 428 734 ("Princet"). As discussed in the Examiner's Interview Summary and below in more detail, Applicants' representative provided arguments as to why the claims meet the requirements of 35 U.S.C. §112 and as to why the cited prior art does not teach or suggest the subject matter of the claims. However, agreement was not reached on the claims.

Amendments to the Specification

Applicants have amended paragraph [0007] of the specification to better conform to the original language of the German priority application. Specifically, the German term "Regelschleife" is more appropriately translated in English as "trial loop" or "control loop". No new matter is added by the amendment.

Claim Rejections under 35 U.S.C. §112

The Examiner rejected claims 3-4 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Claims 3 and 4 have each been amended to specify that the effective radius (78), with which the eccentric ball pivot (60) is adjusted is determined on the basis of tolerance positions of the wiping angle (φ_2) of wiper systems already installed in like motor vehicles and a tolerance position of individual parts of the wiper system.

Applicants respectfully submit that one of ordinary skill would understand that the specification, for example, in paragraph [0007], describes a method of determining the effective radius 78 based on comparing parameters (e.g., wiping angle and/or wiper field) of a wiper system without the ball pivot mechanism and the parameters of the same wiper system with the ball pivot mechanism. In other words, the language refers to the process of adjusting the position

of the ball pivot 60, which affects the effective radius 78, and monitoring the wiping angle resulting from the adjusting step until an optimal or desired wiping angle is obtained.

Accordingly, Applicants respectfully submit that the disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the invention set forth in claims 3 and 4. Applicants respectfully request reconsideration of the rejections under 35 U.S.C. §112, first paragraph.

The Examiner rejected claims 1-7 under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 1 and 3-4 have been amended to provide antecedent basis for the identified claim terms. Accordingly, Applicants respectfully submit that the claims are definite and request reconsideration of the rejections under 35 U.S.C. §112, second paragraph.

Claim Rejections under 35 U.S.C. §103

The Examiner rejected claims 1-2 and 5-7 under 35 U.S.C. §103 as being unpatentable over Ursel in view of Princet. Reconsideration of the rejections is respectfully requested.

Independent Claim 1

Amended independent Claim 1 defines a method for adjusting a wiping angle (ϕ_1 , ϕ_2) between a park position and a reversal position (28, 30) of a wiper lever (16, 18) of a windshield wiper system for a motor vehicle with at least one wiper lever (18) whose park position or reversal position (30) runs approximately parallel to an A pillar (14) of a vehicle body, which laterally delimits a windshield (10), wherein the wiping angle (ϕ_2) is adjusted by means of an eccentric ball pivot (60), which is arranged on a free end of a driving crank (54) and connects the same to a motor crank (52) in an articulated manner by means of an articulated rod (42), while the other end of the driving crank (54) sits on a drive shaft (56) in a rotationally fixed manner, said drive shaft driving a fastening part (58) of the wiper lever (18). Claim 1 specifies that the windshield wiper system is first mounted on the vehicle body without the eccentric ball pivot (60), that a rivet journal (64) of the eccentric ball pivot (60) is then axially inserted fully into a corresponding bore hole of the driving crank (54), that, with the rivet journal (64) of the eccentric ball pivot (60) fully axially inserted in the corresponding bore hole, the optimum wiping angle (ϕ_2) is determined and adjusted by modifying the effective radius (78) between an articulation axis (66) of the eccentric ball pivot (60) and an axis (76) of the drive shaft (56) by

rotating the eccentric ball pivot (60) around an axis (68) of the rivet journal (64), and that finally the rivet journal (64) is non-adjustably fixed in the driving crank (54) in an adjusted position to non-adjustably fix the wiping angle of the wiper lever.

Ursel discloses a motion-transmitting arrangement 10 for windshield wipers. The arrangement 10 includes a drive 12 with an output shaft 15, a crank 16 mounted on and for rotation with the output shaft 15 and having a crank pin 17 spaced from the output shaft 15 by a first distance 44. Two crank rods 18, 19 are pivotably connected to the crank pin 17. The other ends of the crank rods 18, 19 are each pivoted to a pivot pin 20, 21, and the pivot pins 20, 21 are fixedly mounted on the ends of arms 22 and 23. The other ends of arms 22, 23 are each connected to a pivotable wiper shaft 24, 25, and each wiper shaft is connected to a wiper arm 26, 27 carrying a wiper blade 28, 29.

In Ursel, correction of the wiping area is provided by changing the distance 42 between the axis of rotation of shaft 25 (about which the member 23 pivots) and the pivot pin 21 to change the pivot angle of member 23. In Fig. 2, a bolt 45 is provided for a pivot pin (17, 20 or 21), and, when this nut 52 is loosened, the eccentric portion 49 of the bolt 45 can be turned in bore 50, thereby shifting the central axis of the bolt 45 towards or away from the central axis of bore 50. Thus, the distance between a pivot pin and the shaft axis can be varied within the limits imposed by the eccentricity of portion 49 relative to the central axis of bolt 45. The position is then fixed again by tightening the nut 52.

As noted in Ursel, problems associated with an improper wiping area do not necessarily occur immediately upon installation of the windshield wiping arrangement but frequently occur only after the arrangement has been in use for a period of time, usually due to wear (and resulting play) in the pivots and journals of the movable components. Col., 1, lines 44-49. Ursel thus provides a motion-transmitting arrangement in which compensation is provided for malfunctioning or improper functioning resulting from tolerance variations and/or from wear and tear. *Id.*, lines 55-58. In Ursel, the arrangement is simple in construction and operation so that adjustments can be readily made. *Id.*, lines 60-61. The arrangement is designed to be adjusted at the will of the user. Col. 2, lines 7-8.

As discussed during the Interview, Ursel does not teach or suggest, among other things, a method of adjusting a wiping angle in which a rivet journal of an eccentric ball pivot is non-adjustably fixed in the driving crank in an adjusted position to non-adjustably fix the wiping

angle of the wiper lever. Rather, in Ursel, the arrangement is designed so that it can be adjusted at the will of the user. The eccentric member (the bolt 45) is adjustably fixed in a position and, during the life of the wiper arrangement, may be released (by loosening the nut 52), adjusted, and then again fixed in a position (by tightening the nut 52). As such, in Ursel, the wiping angle is also adjustably fixed. Ursel also does not teach or suggest that the windshield wiper system is first mounted on the vehicle body without the eccentric ball pivot, and that a rivet journal of the eccentric ball pivot (60) is then axially inserted fully into a corresponding bore hole of the driving crank. Ursel is silent as to when the eccentric bolt 45 is assembled with the arrangement.

For at least these independent reasons, Ursel does not teach or suggest the subject matter defined by independent claim 1.

Princet does not cure the deficiencies of Ursel. Princet discloses a drive linkage for an automotive windshield wiper system including a crank 10, a link member 14 and at least one ball joint connecting the link member 14 with the crank 10. A ball stud 22 is provided with a ball portion 24 and a shaft portion 26 that has an axis A1 shifted with respect to an axis A2 through the center of the ball portion 24. A cylindrical mounting hole 28 is provided in the crank 10.

For adjustment and assembly, an end of the shaft portion 26 is presented co-axially in front of the mounting hole 28. As shown in Fig. 2, the shaft portion 26 is not fully inserted in the mounting hole 28, and, with the shaft portion 28 in the illustrated axial position, the ball stud 22 is rotated about the axis A1 of the shaft portion 26 to a predetermined position with respect to the crank 10. The shaft portion 26 of the ball stud 22 is then press-fitted in the mounting hole 28 while the ball stud 22 is maintained in the predetermined position about the axis of the mounting hole 28. Additional riveting, while usually not required, may be applied to reinforce this connection.

Princet discloses installing the linkage on a measurement bench to test the wiping cycle and to detect any error in the wiping pattern. Col. 2, lines 11-15. With the linkage installed on the measurement bench, any required adjustment of the position of the ball stud 22 is made, and the shaft portion 26 is press-fitted in the mounting hole 28. *Id.*, lines 15-19.

As discussed during the Interview, Princet does not teach or suggest, among other things, a method of adjusting a wiping angle in which the windshield wiper system is first mounted on the vehicle body and then the optimum wiping angle is determined and adjusted by modifying the effective radius between an articulation axis of the eccentric ball pivot and an axis of the

drive shaft by rotating the eccentric ball pivot around an axis of the rivet journal. Rather, in Princet, the linkage is installed in a measurement bench, and then the wiping angle is adjusted by rotating the ball stud 22 with respect to the crank 10.

As also discussed during the Interview, Princet does not teach or suggest that a rivet journal of the eccentric ball pivot is axially inserted fully into a corresponding bore hole of the driving crank, that, with the rivet journal of the eccentric ball pivot fully axially inserted in the corresponding bore hole, the optimum wiping angle is determined and adjusted by modifying the effective radius between an articulation axis of the eccentric ball pivot and an axis of the drive shaft by rotating the eccentric ball pivot around an axis of the rivet journal. Rather, in Princet, the shaft portion 26 is not fully inserted in the mounting hole 28, and, with the shaft portion 28 in this axial position, the ball stud 22 is rotated about the axis A1 of the shaft portion 26 to a predetermined position with respect to the crank 10. In Princet, after adjustment, the shaft portion 26 of the ball stud 22 is then fully axially inserted (press-fitted) in the mounting hole 28. For at least these independent reasons, Princet also does not teach or suggest the subject matter defined by independent claim 1.

Further, the references actually teach away from the suggested combination. As discussed above, Ursel discloses an arrangement designed so that it can be adjusted at the will of the user and over the life of the wiper arrangement. In contrast, Princet discloses an arrangement in which the position of the ball stud 22 is fixed in a measurement bench and cannot thereafter be adjusted (e.g., upon mounting on a vehicle and/or over the life of the wiper arrangement). The modification of the adjustable arrangement of Ursel with the press-fitted connection of Princet would render the arrangement of Ursel unsatisfactory for its intended purpose – providing adjustability over the life of the wiper arrangement.

For at least these independent reasons, Applicants respectfully submit that Ursel and Princet, alone or in combination, do not teach or suggest the subject matter defined by amended independent claim 1. Accordingly, independent claim 1 is allowable. Dependent claims 2-7 depend from independent claim 1 and are allowable for at least the same and other independent reasons.

New Independent Claim 8

New independent claim 8 defines a method for adjusting a wiping angle (ϕ_1 , ϕ_2) between a park position and a reversal position (28, 30) of a wiper lever (16, 18) of a windshield wiper system for a motor vehicle with at least one wiper lever (18) whose park position or reversal position (30) runs approximately parallel to an A pillar (14) of a vehicle body, which laterally delimits a windshield (10), wherein the wiping angle (ϕ_2) is adjusted by means of an eccentric ball pivot (60), which is arranged on a free end of a driving crank (54) and connects the same to a motor crank (52) in an articulated manner by means of an articulated rod (42), while the other end of the driving crank (54) sits on a drive shaft (56) in a rotationally fixed manner, the drive shaft driving a fastening part (58) of the wiper lever (18). Claim 8 defines the method as including mounting the windshield wiper system on the vehicle body without the eccentric ball pivot (60), after mounting, axially inserting a rivet journal (64) of the eccentric ball pivot (60) into a corresponding bore hole of the driving crank (54), the rivet journal being fully axially inserted into the bore hole, with the rivet journal (64) of the eccentric ball pivot (60) fully axially inserted in the corresponding bore hole, determining and adjusting the optimum wiping angle (ϕ_2) by modifying the effective radius (78) between an articulation axis (66) of the eccentric ball pivot (60) and an axis (76) of the drive shaft (56) by rotating the eccentric ball pivot (60) around an axis (68) of the rivet journal (64), and after adjusting to the optimum wiping angle (ϕ_2), non-adjustably fixing the rivet journal (64) in the driving crank (54) in an adjusted position to non-adjustably fix the wiping angle of the wiper lever.

For independent reasons similar to those set forth above with respect to independent claim 1, Applicants respectfully submit that the cited prior art, including Ursel and Princet, alone or in combination, do not teach or suggest the subject matter defined by new independent claim 8. Accordingly, independent claim 8 is allowable.

CONCLUSION

In view of the foregoing, Applicants respectfully request entry of the present Amendment and allowance of Claims 1-8.

If additional consultation will further prosecution, the undersigned is available during normal business hours at the below-identified telephone number.

Respectfully submitted,

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